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Cancer care and propaganda: UK newspaper reporting of the Cancer Drugs Fund (CDF)

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ABSTRACT

Background. The Cancer Drugs Fund (CDF) was introduced to provide cancer patients in England with access to drugs not appraised or approved by the National Institute for health and Care Excellence (NICE). We studied press coverage of the CDF in UK newspapers in 2010-15.

Methods. Newspaper stories in the Factiva database were sought, and details copied to a spreadsheet. They were categorised by whether they were supportive or critical of the CDF, which drugs they mentioned and for which cancers.

Results. Press coverage was mainly very positive, arguing for the CDF's extension to Scotland and Wales, and a bigger budget, but neglecting the lack of patient benefit and the severe side effects that sometimes occurred. Leading this support was the *Daily Mail*, whose influence (measured by the product of number of stories and the paper's circulation) was almost greater than that of the other newspapers combined.

Conclusions. Although there was some critical analysis of the CDF, our analysis shows that most press coverage was largely positive, and unrepresentative in comparison with the lack of overall benefits to patients and society. It is likely that it contributed to the CDF's continuation despite mounting evidence of its ineffectiveness.

KEY MESSAGES:

- The *Daily Mail*, the *Daily Telegraph* and *The Times* published the greatest volume of news stories regarding the CDF
- The *Daily Mail* had the greatest “influence” of the newspapers, based on the product of number of stories and circulation
- The majority of news stories regarding the CDF were positive calling for an increase in coverage to the devolved UK territories and for greater funding.
- Of the news stories mentioning specific drugs, abiraterone, bevacizumab and trastuzumab were the most frequently cited.
- CDF stories related to particular tumour types were not in keeping with their relative burden as measured by DALYs, with breast cancer over-represented in news articles compared to lung cancer which was under-represented.

BACKGROUND

The Cancer Drugs Fund was established by the UK coalition government in 2010 to provide access to drugs not available through the English NHS. Some of the drugs available through the fund awaited formal assessment by NICE (National Institute for Health and Care Excellence), whilst others had been previously appraised but not recommended for routine funding by the NHS. In 2011, the Cancer Drugs Fund had an annual budget of £200m. The lifespan of the fund was extended over time, along with its budget (increasing to £340 million in 2015-16). However, even though two re-prioritisation exercises were undertaken, the final outturn position for 2015/16 was £466m - an overspend of £126m (37%). Close to £1.4 billion in total has been spent on cancer drugs through this fund.^{1 2} The CDF has subsequently been reconfigured and is now under the control of NICE.²

An analysis of the CDF between 2010 and 2015 has shown that it delivered poor value for tax payers and for patients, with only 38% of approved drugs achieving a statistically significant improvement in overall survival and only 18% meeting thresholds for a clinically meaningful benefit according to value scales developed by professional bodies.³ Put simply, many of these drugs did not offer any benefit with respect to prolongation of life or improvement in quality of life, and access was achieved at considerable financial and opportunity cost with little evidence that patients on the fund benefited.

The CDF was created following intense public and political pressure to provide access no matter what the cost or the evidence for their benefit. This was a debate played out in the media, which resulted in a changing role for NICE and the creation of the CDF.⁴ In this analysis, we have sought to investigate the volume and representativeness of media reporting about the CDF between 2010-2015, specifically highlighting key differences between media outlets in their support for, or opposition to, the fund, and the likely impact on public and political perception given the “impact” or “influence” of particular newspapers. We also assessed the drugs most frequently cited in newspaper reports to see whether any concordance existed with actual prescribing patterns.

METHODS

Inclusion criteria

The full-text database Factiva © Dow Jones was searched between 1 January 2010 and 31 December 2015 for stories in the nine national newspapers that have a circulation across the UK (see Table 1) that contained the phrase "cancer drugs fund". The stories were retained for analysis (by PR and GL) only if the CDF was the main focus of the story.

The full text of each story meeting the inclusion criteria was analysed thematically and the following information collected: the story's date, the newspaper, the headline and the synopsis, as well as the word count. Details of the journalist's name and position (if given), the names of the drugs and the cancer site for which they were intended to be used, were also recorded. Higher thematic codes were derived as either positive (supporting the CDF), neutral, or negative (critical of it). In conjunction with the higher “sentiment” themes, subject area themes were also coded. The codes were modified iteratively⁷ during the analysis of the stories. The codings were developed by PR and RS, and if there was disagreement, there was discussion with AA and GL to resolve the issue. For example, positive newspaper stories were identified that advocated a widening of the geographical coverage of the CDF beyond England to the other devolved territories (e.g. Wales). Similarly, negative stories about the CDF were identified that focused on the effect that the CDF had in re-directing money away from other areas of the NHS. Further analyses sought to measure the comparative “influence” of each newspaper's reporting of the CDF with a metric specifically developed for this evaluation. This was determined for each of the nine newspapers as the product of its circulation (obtained from the Audit Bureau of Circulation,

<https://www.abc.org.uk/>) and the number of stories. Influence was calculated with and without the inclusion of the length of the article (word count).

In addition, we analysed whether there was any concordance between the types of cancer mentioned in the newspaper reports and the burden of disease from each tumour type in the UK in 2010 measured in Disability Adjusted Life Years (DALYs).⁵ This indicator sums the reduction in life expectancy (e.g. premature mortality compared with Japan, with the highest life expectancy) and the number of years spent living at less than full health (disability). The DALY gives a better measure of disease burden from different cancers by including morbidity and mortality. . The analysis is designed to assess whether newspaper coverage of particular tumour types correlates with their health burden on the population.

RESULTS

Outputs of stories in the different newspapers

Out of a total of 1692 stories that mentioned the Cancer Drugs Fund, we excluded 1310 that were about other topics and only mentioned the CDF peripherally. In the 382 media stories retained for analysis that discussed the CDF in some detail, 44 different cancer drugs were identified, 16 different cancer sites were mentioned and 142 different journalists were named as authors. Following the launch of the CDF in 2010, coverage (the number of published stories) was fairly steady from 2010 to 2012 and then increased from 2012 to 2015 (Figure 1). The *Daily Mail* had the greatest calculated influence (based on frequency of stories and newspapers circulation (Table 1). Including article length, which quantified whether an article was a minor item or feature story, made no difference to the rank of CDF reported ‘influence’, therefore the simpler, frequency of story x circulation calculation is used. The table makes clear that the *Daily Mail* had almost as much influence as the other eight daily papers together, and that this was more than three times the influence of any other paper according to our metric.

The tone of the stories and the weight of opinion

Eleven broad themes were identified. The codes and their relative frequency are listed in Table 2. Seven of the codes related to positive reporting of the cancer drugs fund (in green), three related to negative reporting (in red) and one was neutral (black).

Figure 2 demonstrates the editorial balance of stories about the CDF (positive, neutral and negative) for each individual newspaper. For four newspapers the majority of their stories were consistently positive regarding the CDF (*Daily Mail*, *The Sun*, *Daily Express* and *Daily*

Mirror), one was more negative (*Financial Times*) and the four remaining newspapers showed a mixed picture of positive, negative and neutral tones in their stories. The combination of this chart, Table 2 and the influence scores shown in Table 1, illustrates the significant positive reportage of the CDF overall, particularly in the *Daily Mail*.

The dominant narrative was one of praise for the CDF in providing access to drugs that were needed by cancer patients, but had previously been denied. Where the narrative was not wholly supportive the following trade-offs were described: (1) There was a view that the CDF was great, but since it only applied to England, and not Wales or Scotland, it was unfair. (2) Although the CDF benefited some patients, it also distorted NHS spending and was limited to helping only a small group of patients. Possible side effects from the new drugs were only mentioned in one story in the *Financial Times* and one in *The Guardian*.

The cancer drugs and cancer types most often mentioned

The cancer drugs that featured in the newspaper stories were sometimes referred to by their brand names, and sometimes by their "scientific" names. Although there were 216 CDF stories that mentioned specific drugs, the stories were dominated by three systemic therapies, namely bevacizumab (34 mentions, 15% of all drugs cited), trastuzumab emtasine (33 mentions, 15%) and abiraterone (19 mentions, 9%), see Table 3. The national audit office found in its review of CDF-related prescribing that both bevacizumab and abiraterone were the most commonly prescribed drugs in the CDF in 2013/2014 and 2014/2015 accounting for 19% and 11% of all prescriptions respectively.⁸

A particular concern relates to the prescribing of bevacizumab. It was approved for up to nine indications in the CDF for a variety of tumour types including colorectal, breast, ovarian, and cervical cancers. A recent analysis found that none of these indications would have met European Society for Medical Oncology (ESMO) clinical thresholds for meaningful benefit, and only one indication would meet American Society of Clinical Oncology (ASCO) criteria.³

In addition, coverage of affected cancer sites did not reflect the most commonly occurring cancers (incidence) nor those causing the greatest burden, measured in DALYs⁵. Figure 3 compares the numbers of mentions of individual cancer sites with the burden of disease in the UK in 2010 relative to all cancers. Breast, prostate and colorectal cancer received significantly greater media coverage than other cancer sites, and in particular, lung cancer. This is in keeping with breast cancer's greater proportional coverage among all cancer stories:

it has the most research stories on the BBC and in European newspapers.^{9,10} Lung cancer, by contrast, is the leading cause of cancer mortality and disease burden⁵, but was only mentioned four times.

DISCUSSION

Our analysis has shown that there was substantial newspaper media support for the CDF, with our "influence" measure, based on the product of number of articles published and newspaper circulation, showing three times as much in favour as against. There is a potential concern therefore about the influence of media reporting on both demand for, and subsequent access to the drug through the CDF, although a causal link cannot be proved.

In light of the return of the CDF to the NICE cost-effectiveness umbrella from July 2016, it is important to reflect on the potential influence of reporting on the execution of the public policy that led to the CDF. Media reports did not scrutinise the discrepancy between those drugs available on the CDF and those diseases with the greatest health burden, the toxicities of the medicines, nor the opportunity cost of the CDF for other cancer treatments. Reportage in some of the most influential newspapers also failed to appraise why some cancer medicines were funded and others were not in the context of a publicly-funded health system and public preferences for care in incurable disease. Access at any cost was a clear totem around which the pro-CDF media based its coverage. The views of experts who pointed out the intrinsic unfairness of the CDF or the lack of efficacy of, and unpleasant side effects from, many of the drugs seem to have counted for little against the human interest stories of individual patients. This is in keeping with evidence from an analysis of American media coverage of cancer which found that adverse events from cancer treatment were rarely discussed.⁸

In many respects the extensive coverage of the CDF closely mirrors a major media preoccupation with cancer. Although cancer is responsible for only 21% of DALYs in the UK, there are many more newspaper stories about research on cancer than about the other main causes of the UK disease burden, cardiovascular disease (including stroke) and mental disorders.^{5 11} Furthermore, the focus on cancer medicines is also notable. The preponderance of stories on chemotherapy⁹, compared with surgery and radiotherapy, has probably contributed to a strong public perception that the best way to help cancer patients and improve outcomes is to allow them access to new (and expensive) medicines, whose performance is often hyped and gives rise to unreasonable expectations.¹¹²⁻¹⁵¹⁻¹⁴ The reason

for the pre-eminence of chemotherapy in cancer journalism is not clear but is likely to be related to the volume of press releases by both public and private sectors on the outputs of the global cancer research endeavour, which is disproportionally focused on fundamental cancer biology, new medicines and biomarkers.^{16,17}

In an era of ‘alternative facts’ it is imperative that health journalists maintain their credibility by being critical of the "next big thing" or “game changer” and that the research funders and institutions assist them in their work. In the face of the escalating costs of the CDF and its failure to demonstrate measurable improvements in life expectancy or quality of life for the patients who were treated, it is important to consider whether unrepresentative media coverage contributed to the longevity of the CDF and the policy mis-direction that occurred. In addition to highlighting editorial policies in the print media, this study also draws attention to the failure of many public organisations, including charitable research funders in the UK, to publicise the shortcomings of the CDF. This also must be considered in the context that there is no evidence that ring-fencing drug-only spending for cancer will improve outcomes for cancer patients over and above greater investment in the whole cancer management pathway (screening, diagnostics, radiotherapy, surgery and palliative care).

Our study was limited to the reportage in nine national newspapers, and did not cover other sources of public information such as broadcasts and social media. The exclusion of newspapers from the other UK territories was justifiable because the CDF operated only in England. It is also important to stress that we are not able to prove causality between media reporting and the longevity of the CDF. In future, it would be desirable to complement this study with a qualitative analysis of how the media affected the policy-makers and physicians who were principally involved. It would also be worthwhile to interview some of the leading journalists in order to discover the frames and drivers that they experienced for their reportage.

In summary, our analysis demonstrates that the media coverage around the NHS Cancer Drugs Fund, was largely positive, and unrepresentative in comparison with the lack of overall benefits to patients and society of the Cancer Drugs Fund, which has since undergone a substantial overhaul. In addition, many of the articles espoused the virtues of particular drugs such as bevacizumab, which failed to deliver improvement in survival or quality of life for several tumour types according to the original trial evidence. It is possible that the skewed media coverage influenced demand and subsequent access for particular drugs through the

230 fund, and therefore brings into question the fairness from a public policy perspective of the
231 NHS Cancer Drugs Fund. However, it is important to point out that a number of senior
232 correspondents, commentators and media outlets (e.g. *The Guardian*) did attempt to redress
233 the balance. But compared with the positive reporting and wide distribution of the other UK
234 national newspapers, they were lone voices in the wilderness.

235 **ADDITIONAL INFORMATION**

236 **Ethics approval and consent to participate**

237 Not required; data taken from UK newspapers only

238 **Consent for publication**

239 Not required; data taken from UK newspapers only

240 **Availability of data and material**

241 The data obtained from the stories in the newspapers are available in an Excel file on request
242 from the corresponding author. They will also be deposited in a publicly-available archive.

243 **Conflicts of interest**

244 GL declares having shares in Astra Zeneca, GlaxoSmithkline and Shire/Takeda. The other
245 authors declare no support from any organisation for the submitted work; no financial
246 relationships with any organisations that might have an interest in the submitted work in the
247 previous three years, and no other relationships or activities that could appear to have
248 influenced the submitted work.

249 **Funding**

250 King's College London internal funds

251 **Authorship**

252 RS conceived the study and designed it with GL. GL and PR undertook the primary analysis
253 with methodological input from CC and RS. All authors have been involved in revising the
254 work critically and approved the final version. RS is the guarantor of the study.

255

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305 **Tables**

306 Table 1. Amount of influence of individual newspapers in their stories about the Cancer
 307 Drugs Fund, based on product of circulation in 2014, number of stories and mean length in
 308 words. DML = *Daily Mail*; SUN = *The Sun*; TEL = *Daily Telegraph*; MIR = *Daily Mirror*;
 309 DEX = *Daily Express*; TIM = *The Times*; IND = *The Independent* (and *i*); GDN = *The*
 310 *Guardian*; FIT = *Financial Times*

	Stories	Mean words	Total words	Circulation, k	Influence	Percent
DML	82	596	48887	1780	145960	46.3
SUN	29	379	10989	2210	41990	13.3
TEL	57	476	27106	550	31350	9.9
MIR	49	526	25766	990	28710	9.1
DEX	56	422	23637	500	24500	7.8
TIM	19	465	8831	380	21280	6.7
IND	29	619	17939	370	10730	3.4
GDN	28	798	22343	210	5880	1.9
FIT	22	638	14026	230	5060	1.6
Total	371		199523	7220	315460	100.0

311

312

313 Table 2. Qualitative codes for CDF stories

<i>Code</i>	<i>Significance of the newspaper story</i>	<i>Number of stories</i>
GEO	the CDF should have a wider geographical coverage (Wales, Scotland)	88
MON	the CDF is good, but would benefit from more money	60
GOO	the CDF is good generally	29
PEO	the CDF is good and is helping people, including named individuals	23
DRU	the CDF is good, but should cover more drugs	10
AVA	the CDF is good generally but in a context of attacking the NHS: <i>e.g</i> this drug should be available generally, not just via the special fund	9
OTH	the CDF is good, but should also cover other cancer treatments	2
NEU	does not say CDF is good or bad (balanced/neutral)	84
NHS	the CDF is bad because it takes money from the rest of the NHS	59
NIC	the CDF is bad because it undercuts the evidence-based NICE recommendations	9
LOB	the CDF is bad because it is the result of lobbying by drug companies and/or patient groups	8
SID	the CDF is bad because the drugs are ineffective and have nasty side-effects	2

314

315

Table 3. Individual cancer drugs mentioned in the newspaper stories, with numbers of mentions.

<i>Trade name</i>	<i>Scientific name</i>	<i>N</i>	<i>Trade name</i>	<i>Scientific name</i>	<i>N</i>
Avastin	bevacizumab	34	Jevtana	cabazitaxel	2
Kadcyla	trastuzumab emtansine	33	Soliris	eculizumab	2
Zytiga	abiraterone	19	Sprycel	dasatinib	2
Xtandi	enzalutamide	11	Tarceva	erlotinib	2
Erbitux	cetuximab	10	Xalkori	crizotinib	2
Yervoy	ipilimumab	9	Alimta	pemetrexed	1
Zelboraf	vemurafenib	8	Arzerra	ofatumumab	1
Halaven	eribulin	7	Campath	alemtuzumab	1
Perjeta	pertuzumab	7	Gleevec	imatinib	1
Tyverb	lapatinib	7	Glucophage	metformin	1
Lynparza	olaparib	6	Ibrance	palbociclib	1
Nexavar	sorafenib	6	Imnovid	pomalidomide	1
Sutent	sunitinib malate	6	Keytruda	pembrolizumab	1
Abraxane	protein-bound paclitaxel	4	Mabthera	rituximab	1
Opdivo	nivolumab	4	Sertex	serratiopeptidase	1
Vedotin	brentuximab	4	Sovaldi	sofosbuvir	1
Gleevec	imatinib	3	Stivarga	regorafenib	1
Revlimid	lenalidomide	3	Synribo	omacetaxine	1
Afinitor	everolimus	2	Tasigna	nilotinib	1
Bosulif	bosutinib	2	Taxol	paclitaxel	1
Herceptin	trastuzumab	2	Taxotere	docetaxel	1
Inlyta	axitinib	2	Vectibix	panitumumab	1

321 **Figure legends**

322 Figure 1. Numbers of stories about the Cancer Drugs Fund in nine national UK newspapers,
323 2010-15. *For codes, see Table 1. (Sunday Times stories excluded as it is not a daily*
324 *newspaper).*

325 Figure 2. The tone of the cancer drugs fund stories in the 10 newspapers, 2010-15. *For*
326 *newspaper codes see Table 1 and for story character codes see Table 2. Green solid/shaded:*
327 *positive reporting of CDF; White: neutral or balanced; Red-Pink solid/shaded: negative*
328 *reporting of CDF.*

329 Figure 3. Comparison of numbers of mentions of cancer sites in CDF stories, 2010-15, with
330 relative disease burden in the UK from cancers at these sites, 2010.

331

Figure 1. Numbers of stories about the Cancer Drugs Fund in nine national UK newspapers, 2010-15. For codes, see Table 1.

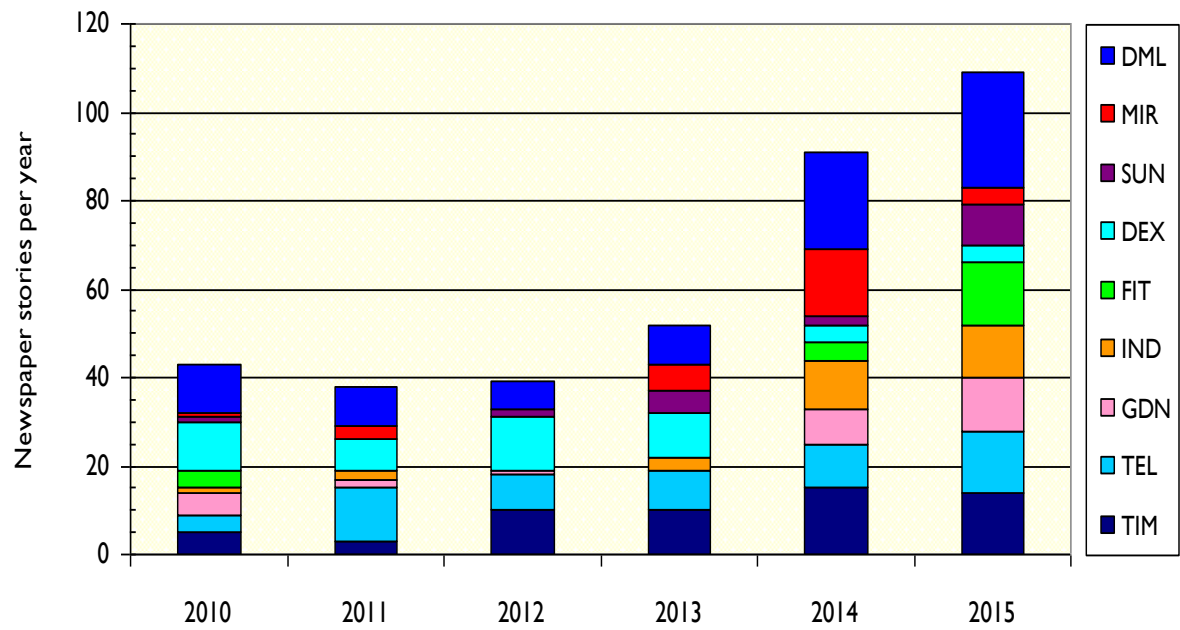


Figure 2. The tone of the cancer drugs fund stories in the 10 newspapers, 2010-15. *For newspaper codes see Table 1 and for story character codes see Table 2. Green solid/shaded: positive reporting of CDF; White: neutral or balanced; Red-Pink solid/shaded: negative reporting of CDF.*

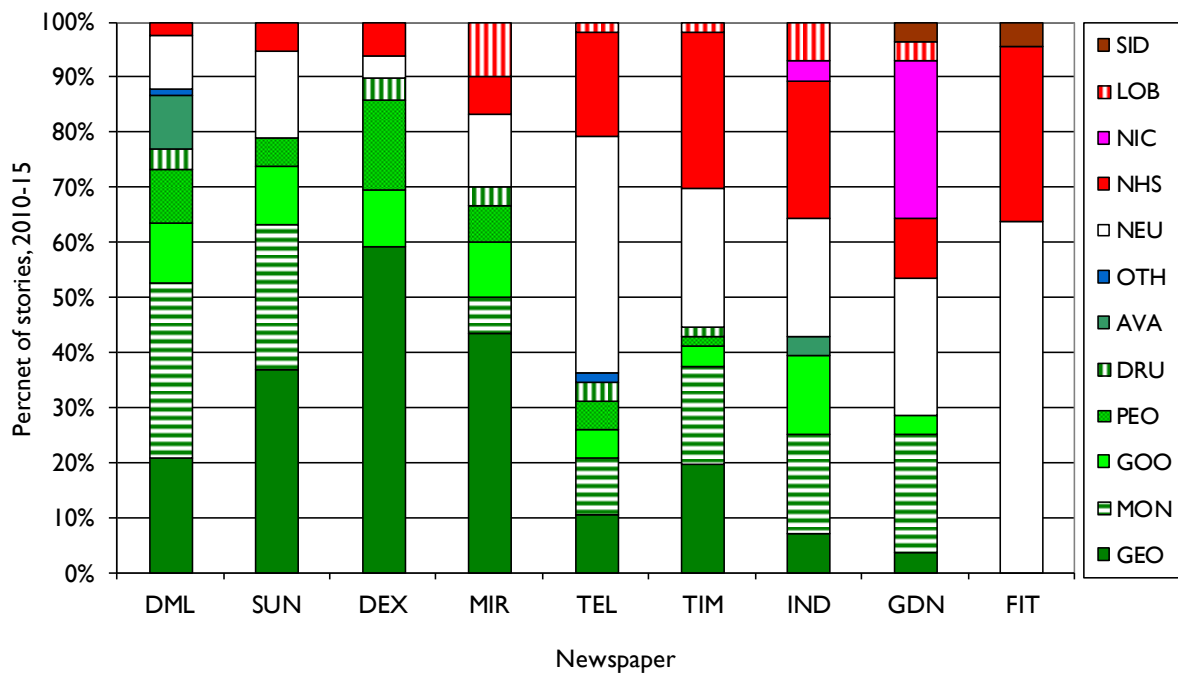


Figure 3. Comparison of numbers of mentions of cancer sites in CDF stories, 2010-15, with relative disease burden in the UK from cancers at these sites, 2010.

